

REMARKS

Applicant thanks the Examiner for the very thorough consideration given the present application.

Claims 1-8 are now present in this application. Claims 1 and 8 are independent.

Amendments have been made to the Abstract of the Disclosure and specification, and claims 1-4, 6 and 8 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicant thanks the Examiner for acknowledging Applicant's claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Information Disclosure Citation

Applicant thanks the Examiner for considering the reference supplied with the Information Disclosure Statement filed July 7, 2000, and for providing Applicant with an initialed copy of the PTO-1449 form filed therewith.

Drawings

Applicant has not received a Notice of Draftsperson's Patent Drawing Review PTO-948 or other indication of whether or not the formal drawings have been approved by the Draftsperson. Since no objection has been received, Applicant assumes that the drawings are acceptable and that no further action is necessary. Confirmation thereof in the next Office Action is respectfully requested.

Objection to the Abstract of the Disclosure

The Examiner has objected to the Abstract of the Disclosure because of the use of legal phraseology and because the abstract exceeds 150 words in length.

In order to overcome this objection, Applicant has amended the Abstract of the Disclosure to delete any legal phraseology and to reduce the number of words to a number of words less than 150. Accordingly, reconsideration and withdrawal of this objection are respectfully requested.

Substitute Specification

In accordance with MPEP §608.01(q), Applicant herewith submits a substitute specification in the above-identified application. Also included is a

marked-up copy of the original specification which shows the portions of the original specification which are being added and deleted. Applicant respectfully submits that the substitute specification includes no new matter and that the substitute specification includes the same changes as are indicated in the marked-up copy of the original specification showing additions and deletions.

Because the number of amendments which are being made to the original specification would render it difficult to consider the case, or to arrange the papers for printing or copying, Applicant has voluntarily submitted this substitute specification. Accordingly, Applicant respectfully requests that the substitute specification be entered into the application.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claim 6 stands rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed.

The Examiner has set forth certain instances wherein the claim language is indefinite.

In order to overcome this rejection, Applicant has amended claim 6 to correct the deficiency specifically pointed out by the Examiner. Applicant respectfully submits that claim 6, as amended, particularly points out and distinctly claims the subject matter which Applicant regards as the invention.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1-5 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,811,279 to Bean et al. (Bean). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicant respectfully submits that independent claim 1 has been amended to recite a combination of elements in a method for serial data communication which transmits and receives data in two-way, including transmitting data and a clock signal from a first control unit to a second control unit, at the same time checking a reception confirmation signal of the second control unit by the first control unit; and transmitting data and a clock signal from the second control unit to the first control unit, at the same time checking a reception confirmation signal of the first control unit by the second control unit. Applicant respectfully submits that this combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Bean.

The Examiner states that Beans discloses a method for serial data communication, which transmits and receives data in two-way, comprising transmitting data and a clock signal from a first control unit (block 20) to a second control unit (block 30).

The Applicant respectfully submits that the first control unit of Bean (block 20) does not transmit a clock signal. Similarly, the asserted second control unit of Bean (block 30) does not transmit a clock signal. Based on this distinction, the rejection under 35 U.S.C. 102 is improper. Further, the asserted second control unit of Bean (block 30) is a receiver only, and cannot perform the same function as the first control unit of the Applicant's claimed invention. That is, the asserted second control unit of Bean (receiver/block 20) does not meet transmitting data and a clock signal from the second control unit to the first control unit, at the same time checking a reception confirmation signal of the first control unit by the second control unit, as recited in independent claim 1, as amended.

Referring to Fig. 1 of Bean, a cable (or bus), consists of four lines, 12-18, which are used to transmit ten logical signals between a controller 20 and a drive 30. All four bus lines are unidirectional high-speed bit-serial channels. When the term "unidirectional channel" is used herein it is intended in the foregoing sense - that is, it signifies a single conductor or wire over which bit-serial communications are provided and which is terminated at one end by a

transmitter and at the other end by a receiver, so that transmissions take place in only one direction over the conductor (see Bean, Col.4, line 56 – Col.5, line 1).

Further, in Bean, a preferred encoding scheme is specified, but other encoding schemes may be employed, so long as a self-clocking code is used. Bean provides explicitly that there is no provision for a separate clock signal to be transmitted (Bean, Col.5, lines 16-27). Hence, the rejection under 35 U.S.C. 102 is improper.

Bean further provides that messages are transmitted between controller and drive by means of a drive control protocol having three layers, and that "Level 2" is the level at which command/response exchanges take place. The Level 2 protocol imposes a strict master/slave relationship on communications between the controller and the drive. The controller is the master and is responsible for initiating all exchanges; the drive is the slave and its activity is limited largely to completing exchanges by giving appropriate responses (Bean, Col.5, lines 33-57, especially lines 55-56). This is the same as the conventional art disclosed by the Applicant.

Therefore, Applicant respectfully submits that the combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Bean, for the reasons explained above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

With regard to dependent claims 2-7, Applicant submits that claims 2-7 depend, either directly or indirectly, from independent claim 1 which is allowable for the reasons set forth above, and therefore claims 2-7 are allowable based on their dependence from claim 1. Reconsideration and allowance thereof are respectfully requested.

Rejections under 35 U.S.C. § 103

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bean in view of Knoblock et al. (Knoblock) and further in view of Wong. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicant respectfully submits that independent claim 8 has been amended to recite a combination of elements in an apparatus for serial data communication, including two control units connected to each other, each of said control units transmitting data to the other with a data transmission start signal in a data transmission mode. Applicant respectfully submits that this combination of elements is not disclosed or suggested by the prior art of record, including Bean.

As set forth above, Bean provides that messages are transmitted between

controller and drive by means of a drive control protocol having three layers, and that "Level 2" is the level at which command/response exchanges take place. The Level 2 protocol imposes a strict master/slave relationship on communications between the controller and the drive. The controller is the master and is responsible for initiating all exchanges; the drive is the slave and its activity is limited largely to completing exchanges by giving appropriate responses (Bean, Col.5, lines 33-57, especially lines 55-56).

Since the controller initiates all exchanges (for example, a data transmission start signal), then it is evident that the drive does not initiate any exchanges (for example, a data transmission start signal). Hence, Bean does not meet the Applicant's claimed combination which includes the features of (1) two control units (Bean teaches a master/slave operation) and (2) each of said control units transmitting data to the other with a data transmission start signal.

Therefore, Applicant respectfully submits that the combination of elements as set forth in independent claim 8 is not disclosed or made obvious by the prior art of record, including Bean, for the reasons explained above. Neither Knoblock, nor Wong can supply the deficiency of Bean.

Since neither Bean, nor Knoblock, nor Wong teaches or suggests the above-recited features of independent claim 8, as amended, Bean, in view of Knoblock, and further in view of Wong cannot render claim 8 obvious to one of

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ordinary skill in the art. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

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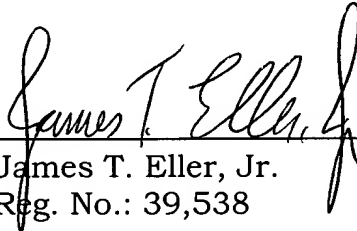
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Replacement Drawing Sheets
Annotated Drawing Sheets
Abstract of the Disclosure
Substitute Specification (with marked-up copy)

ABSTRACT OF THE DISCLOSURE

A method and an apparatus for serial data communication employs a data transmission process which transmits data from one control unit to the another control unit and at the same time checks a reception confirmation signal on each number of the data by transmitting a clock signal, and a data reception process which receives the data on the one control unit from the other control unit and checks a transmission confirmation signal on the each number of the data by transmitting the clock signal. The apparatus comprises a first and a second control unit, four serial buses for performing serial data communication between the both control units, two pull-up operation units for continuing control voltage of the serial buses at a certain level, and a control voltage matching unit for continuing voltage equilibrium condition.